

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims

Claim 1 (Currently amended): A production process of a polymerized toner, comprising a multiple batch continuous polymerization process which comprises Step 1 of forming droplets of a polymerizable monomer composition containing a polymerizable monomer, a colorant and a polymerization initiator in an aqueous dispersion medium containing a dispersion stabilizer to prepare an aqueous liquid dispersion with the droplets dispersed therein, and Step 2 of heating the aqueous liquid dispersion in a polymerization container to polymerize the polymerizable monomer composition, thereby forming colored polymer particles,

wherein in Step 2,

(1) a corrosion-resistant metal container having an inner wall surface, the surface roughness R_y of the [[an]] inner wall surface of which is at most [[1.0]] $1\text{ }\mu\text{m}$, is used as the polymerization container, wherein the corrosion-resistant metal container is a polished stainless steel container, and

(2) upon the heating of the aqueous liquid dispersion in the polymerization container to conduct polymerization, the temperature is raised stepwise such that:

i) the temperature of the aqueous liquid dispersion is raised up to a temperature 5°C lower than a target polymerization temperature at a heating constant rate of 25 to 50°C/hr ,

ii) the temperature of the aqueous liquid dispersion is raised up to the target polymerization temperature from the temperature 5°C lower than the target polymerization temperature at a heating rate of 10 to 20°C/hr, and

iii) after the temperature of the aqueous liquid dispersion reaches the target polymerization temperature, a polymerization reaction is carried out while controlling the temperature of the aqueous liquid dispersion so as to fall within a range of (the target polymerization temperature \pm 3°C).

Claim 2 (Original): The production process according to claim 1, wherein in Step 1, the droplets of the polymerizable monomer composition are formed in a first aqueous dispersion medium (A1) containing the dispersion stabilizer to prepare an aqueous liquid dispersion with the droplets dispersed therein, and in Step 2, a second aqueous dispersion medium (A2) containing 0.1 to 5% by weight of the dispersion stabilizer is poured into the aqueous liquid dispersion thus obtained in a proportion of 10 to 150 parts by weight per 100 parts by weight of the polymerizable monomer prior to initiation of the heating.

Claim 3 (Original): The production process according to claim 1, wherein in Step 2, water is sprayed during the polymerization to retain an upper inner wall surface of the polymerization container in a wetted state.

Claim 4 (Canceled)

Claim 5 (Previously presented): The production process according to claim 1, wherein the stainless steel container is an austenitic stainless steel container.

Claim 6 (Canceled)

Claim 7 (Original): The production process according to claim 1, wherein the surface roughness R_y of the inner wall of the polymerization container is at most 0.5 μm .

Claim 8 (Currently amended): The production process according to claim 1, wherein the polymerization container is a corrosion- resistant metal container, the surface roughness R_y of the inner wall of which is controlled to at most ~~[[1.0]]~~ 1 μm by buff polishing, electrolytic polishing or a combination thereof.

Claim 9 (Original): The production process according to claim 1, wherein in Step 1, the temperature of the aqueous liquid dispersion is controlled within a range of 10 to 40°C.

Claims 10 and 11 (Canceled)

Claim 12 (Original): The production process according to claim 1, wherein in Step 2, the target polymerization temperature is determined to be within the range of $\pm 2^{\circ}\text{C}$ from hourly half-life temperature.

Claim 13 (Original): The production process according to claim 1, wherein the dispersion stabilizer is colloid of a hardly water-soluble metal hydroxide.

Claim 14 (Original): The production process according to claim 1, wherein in Step 2, the polymerization is conducted until a conversion into a polymer reaches substantially 100%.

Claim 15 (Original): The production process according to claim 1, wherein in Step 2, the temperature of a jacket arranged at an outer periphery of the polymerization container and the temperature of the aqueous liquid dispersion are measured to make temperature control using a cascade control method.

Claim 16 (Original): The production process according to claim 1, which comprises a step of adding a polymerizable monomer for shell to the aqueous liquid dispersion containing the colored polymer particles formed after Step 2 to further conduct polymerization, thereby forming a shell polymer on the surfaces of the colored polymer particles to form core-shell type colored polymer particles.

Claim 17 (Original): The production process according to claim 1, wherein the colored polymer particles are substantially spherical, the volume average particle diameter d_v thereof is 3 to 10 μm , and a particle diameter distribution represented by a ratio d_v/d_p of the volume average particle diameter d_v to the number average particle diameter d_p is 1 to 1.2.

Claim 18 (Original): The production process according to claim 16, wherein the core-shell type colored polymer particles are substantially spherical, the volume average particle diameter d_v thereof is 3 to 10 μm , and a particle diameter distribution represented by a ratio d_v/d_p of the volume average particle diameter d_v to the number average particle diameter d_p is 1 to 1.2.

Claim 19 (Canceled)

Claim 20 (New): The production process according to claim 1, wherein the multiple batch continuous polymerization process is a 5 batch continuous polymerization process.